INTERNATIONAL JOURNAL OF

CHEMICAL KINETICS

Contents, Volume 28, 1996

No. 1, January 1996

Rate Constants for the Reactions of $O(^3P)$ with Selected Monoterpenes 1
D. Luo, J. A. Pierce, I. L. Malkina, and W. P. L. Carter

Temperature Dependence of the Reaction of NO with $CFCl_2CH_2O_2$ and CH_3CFClO_2 Radicals 9
F. Wu and R. W. Carr

Kinetics and Mechanism of the Thermal Decomposition Reaction of Dihydro-3,6-Diphenyl-5-Benzyl-1,2,4,5-Trioxazine 21
L. F. R. Cafferata, M. Nojima, and H. Yamakoshi

The Pyrolysis of CCl_4 and C_2Cl_6 in the Gas Phase. Mechanistic Modeling by Thermodynamic and Kinetic Parameter Estimation 27
G. Huybrechts, M. Narmon, and B. Van Mele

Reaction Kinetics of Lactic Acid with Methanol Catalyzed by Acid Resins 37
J. I. Choi, W. H. Hong, and H. N. Chang

The Dark Reactions $F_2 + CF_3I$, C_2F_5I, and n-C_3F_7I 43
D. E. Johnson, E. A. Walters, and E. A. Dorko

The Use of Free Energy Relationships to Rationalize Kinetic Data in Complex Solvent Mixtures 57
P. Lopéz, F. Sánchez, R. Jiménez, P. Pérez-Tejeda, and M. L. Moyá

Substituent Effects on the Disproportionation-Combination Rate Constant Ratios for Gas-Phase Halocarbon Radicals. II. Reactions of $\cdot CF_3 + CF_3CH_2CH_2\cdot$ and $CF_3CH_2CH_2\cdot + CF_3CH_2CH_2\cdot$ 61
D. R. McDowell, J. Weston, and B. E. Holmes

Erratum 69

Diskette Submission Instructions I

No. 2, February 1996

Photolysis of CF_3NO as a Source of CF_3 Radicals, Rate Constant of the $CF_3 + CF_3NO$ Reaction at 296 K 71
A. B. Garmanov and A. B. Vakhtin

Shock Tube Study of OH Reactions with Linear Hydrocarbons near 1100 K 79
J. B. Koffend and N. Cohen

Activation Energy for Thermal Decomposition of Nitric Oxide 89
R. J. Wu and C. T. Yeh

A Unified Approach to Kinetic Processing of Nonisothermal Data 95
S. Vyazovkin

Oxidation of Tris(1,10-Phenanthroline)Iron(II) Ion by Iodate and Periodate Ions in Neutral Medium 103
M. Cyfert, B. Latko, and M. Wawrzeńczyk

Substituent Effects on the Disproportionation–Combination Rate Constant Ratios for Gas-Phase Halocarbon Radicals. Part III: Reactions of CF_3 + $CF_3CH_2CHCF_3$ and $CF_3CH_2CHCF_3$ + $CF_3CH_2CHCF_3$ 109
D. R. McDowell and B. E. Holmes

Kinetics of the Reaction CH + N2 $\xrightarrow{[M]}$ Products in the Range 10–620 torr and 298–1059 K 115
K. H. Becker, H. Geiger, and P. Wiesen

Kinetics of the Complexation of Al^{3+} with Aminoacids, IDA and NTA 125
A. Pohlmeier and W. Knoche

Shock Tube and Modeling Study of 1,3-Butadiene Pyrolysis 137
Y. Hidaka, T. Higashihara, N. Ninomiya, H. Masaoka, T. Nakamura, and H. Kawano

Diskette Submission Instructions I

No. 3, March 1996

A Kinetic Study of Electron Transfer from L-Ascorbic Acid to Sodium Perborate and Potassium Peroxy Disulphate in Aqueous Acid and Micellar Media 153
K. C. Rajanna, K. N. Reddy, U. U. Kumar, and P. K. Sai Prakash

Correlation Analysis of Reactivity in the Addition of Substituted Benzylamines to Ethyl α-Cyanocinnamate 165
N. Jalani, S. Kothari, and K. K. Banerji

A Shock Tube Study of the Reactions of CH with CO_2 and O_2 171
M. W. Markus, P. Roth, and T. Just

The Mechanism of Ethylene Pyrolysis at Small Conversions 181
J. M. Roscoe, I. S. Jayaweera, A. L. MacKenzie, and P. D. Pacey

Kinetics of the Reaction of the Sulfate Radical with the Oxalate Anion 195
R. E. Huie and C. L. Clifton

A Kinetic Study of the Reactions of 2-Propyl Radicals in the Liquid Phase in the Presence and Absence of Oxygen 201
A. R. Costello, J. R. Lindsay Smith, and D. J. Waddington

An Exploratory Investigation of the Use of Alkali Metals in Nitrous Oxide Control 217
R. A. Perry and J. A. Miller

Diskette Submission Instructions I

No. 4, April 1996

Gas-Phase Reaction of *n*-Butyl Acetate with the Hydroxyl Radical under Simulated Tropospheric Conditions: Relative Rate Constant and Product Study **235**
M. Veillerot, P. Foster, R. Guillermo, and J. C. Galloo

A Shock Tube Study of Reactions of CN with HCN, OH, and H_2 using CN and OH Laser Absorption **245**
S. T. Wooldridge, R. K. Hanson, and C. T. Bowman

Acceleration Effect of Electroless Nickel Deposition by Thiourea **259**
H. Ke-Ping and F. Jing-Li

Osmium(VIII) Catalyzed Kinetics and Mechanism of Indoles Oxidation with Aryl-*N*-Haloamines in Alkaline Medium **265**
K. S. Rangappa, H. Ramachandra, D. S. Mahadevappa, and N. M. Made Gowda

Dynamics of Ternary Complex Formation in the Reaction of Diaquoanthranilato-*N*, *N*-diacetatonickelate(II) with 2,2′-Bipyridine and 1,10-Phenanthroline **275**
A. K. Das

Kinetics of the Reaction of Sodium Arylthiolates with Nitro-Carboxybenzyl Halide Derivatives **283**
E. A. Hamed, A. A. El-Bardan, and N. M. El-Mallah

Rate Constants for Reactions of OH Radicals with a Series of Asymmetrical Ethers and *tert*-Butyl Alcohol **291**
S. Teton, A. Mellouki, G. Le Bras, and H. Sidebottom

Atmospheric Chemistry of Di-*tert*-Butyl Ether: Rates and Products of the Reactions with Chlorine Atoms, Hydroxyl Radicals, and Nitrate Radicals **299**
S. Langer, E. Ljungström, I. Wängberg, T. J. Wallington, M. D. Hurley, and O. J. Nielsen

The Nitrosation of *N*-Alkylureas: Evidence for a Proton Transfer Mechanism **307**
J. Casado, G. González-Alatorre, C. Izquierdo, and C. Brunner

Diskette Submission Instructions **I**

No. 5, May 1996

Oxidation of Toluene in NO_x Free Air: Product Distribution and Mechanism **315**
R. Seuwen and P. Warneck

Kinetic Modelling and Inverse Treatment of the Radical Mechanism of the Liquid-Phase Autoxidation of 1,2,3,4-Tetrahydronaphthalene **333**
D. Lavabre, J. C. Micheau, T. Buhse, and W. Thiemann

Kinetic Study of the Ce(III)- or Ferroin-Catalyzed Belousov-Zhabotinsky Reaction with Ethyl- or Butyl-Malonic Acid **345**
Y.-F. Chen, H.-P. Lin, S. S. Sun, and J.-J. Jwo

Gas-Phase Thermolysis of *t*-Butylsufenamides: *N,N*-Dimethyl *t*-Butylsulfenamide, 2,6-Dimethylpiperidinyl *t*-Butylsulfenamide, and *N*-*t*-Butyl *t*-Butylsulfenamide **353**
G. Martin, J. Ascanio, and J. Rodriquez

A Shock Tube Study of CO + OH → CO_2 + H and HNCO + OH → Products via Simultaneous Laser Absorption Measurements of OH and CO_2 **361**
M. S. Wooldrige, R. K. Hanson, and C. T. Bowman

Gas-Phase Reaction of Ozone with *Trans*-2-Hexenal, *Trans*-2-Hexenyl Acetate, Ethylvinyl Ketone, and 6-Methyl-5-Hepten-2-One **373**
E. Grosjean, D. Grosjean, and J. H. Seinfeld

Kinetic Study of the Reaction of BrO Radicals with Dimethylsulfide **383**
Y. Bedjanian, G. Poulet, and G. Le Bras

Kinetic Study of the Reaction between Iodide and *N*-Chloramines **391**
J. M. Antelo, F. Arce, J. Campos, and M. Parajó

Diskette Submission Instructions **I**

No. 6, June 1996

Rate Constant for the Reaction of Cl with $CHCl_3$ **397**
K. M. Brahan, A. D. Hewitt, G. D. Boone, and S. A. Hewitt

Laser-Flash Photolysis Study of Dithiobis (tetrazole); Reactivities of Tetrazole-thio Radical **405**
M. M. Alam, A. Watanabe, and O. Ito

Pd(II) Inhibition during Hexacyanoferrate(III) Oxidation of Sugars: A Kinetic Study **413**
P. Bajpai, A. Shukla, and S. K. Upadhyay

Kinetic Studies on General Base-Catalyzed Cleavage of Phthalimide (PTH) in 2-Hydroxyethylamine and 2-Methoxyethylamine Buffers **421**
M. N. Khan

Atmospheric Chemistry of CH_2Br_2: Rate Coefficients for Its Reaction with Cl Atoms and OH and the Chemistry of the $CHBr_2O$ Radical **433**
J. J. Orlando, G. S. Tyndall, T. J. Wallington, and M. Dill

The Rate Constant for the Recombination of Trifluoromethyl Radicals at T = 296 K **443**
A. B. Vakhtin

Ruthenium(VIII) Mediated Oxidation of Some Aliphatic and Alicyclic Ketones by Periodate-Ruthenium(III) System in Aqueous $HClO_4$ Medium **453**
M. Panda and S. C. Pati

Rate Constants for the Gas-Phase Reaction of Ozone with 1,2-Disubstituted Alkenes **461**
E. Grosjean and D. Grosjean

Rates of Reaction between the Nitrate Radical and Some Unsaturated Alcohols **467**
M. Hallquist, S. Langer, E. Ljungström, and I. Wängberg

Diskette Submission Instructions **I**

No. 7, July 1996

The Products of the Reaction of the Hydroxyl Radical with 2-Ethoxyethyl Acetate **475**
J. R. Wells, F. L. Wiseman, D. C. Williams, J. S. Baxley, and D. F. Smith

Gas-Phase Pyrolysis Mechanism and Kinetics of 3-*t*-Butoxyquadricyclane **481**
A. J. Alfano

Kinetics and Mechanism of the Thermal Gas-Phase Reaction between Trifluoromethylhypofluorite, CF_3OF, and Tetrachloroethene **489**
J. Czarnowski

Development and Evaluation of a Detailed Mechanism for the Atmospheric Reactions of Isoprene and NO_x **497**
W. P. L. Carter and R. Atkinson

Isomerization Reactions of the *n*-C_4H_9O and *n*-OOC_4H_8OH Radicals in Oxygen **531**
A. Heiss and K. Sahetchian

Studies on the Oxidation of α-Amino Acids by N-Bromo Oxidants: Kinetics of the Reaction of Bromide Ion with N-Bromoacetamide **545**
M. S. Ramachandran, D. Easwaramoorthy, and R. P. Malim Maniraj

Book Review **553**
A. S. Rodgers

Diskette Submission Instructions **I**

No. 8, August 1996

The Reactivity of *tert*-Butylperoxy Radicals with Respect to Aldehydes, Amines, and Ethers in Solution. The Importance of Polar Effect **555**
L. A. Tavadyan, V. A. Mardoyan, and M. V. Musaelyan

Rate Coefficients for the Gas-Phase Reactions of Bromine Radicals with a Series of Alkenes, Dienes, and Aromatic Hydrocarbons at 298 ± 2 K **565**
A. Bierbach, I. Barnes, and K. H. Becker

Kinetics and Mechanism of the Reaction of CF_3 Radicals with NO_2 **579**
J. Sehested, O. J. Nielsen, C. A. Rinaldi, S. I. Lane, and J. C. Ferrero

Kinetics of the Reactions of CH_3O with Cl and ClO **589**
V. Daële, G. Laverdet, and G. Poulet

The Pressure Dependence of the Thermal Decomposition of N_2O **599**
M. Röhrig, E. L. Petersen, D. F. Davidson, and R. K. Hanson

Kinetics of the Reaction of OH Radicals with a Series of Esters under Simulated Conditions at 295 K **609**
C. Ferrari, A. Roche, V. Jacob, P. Foster, and P. Baussand

Kinetics of the Nucleophilic Substitution of Benzyltributylammonium Bromide with Allyl, Butyl, and Benzyl Chlorides and with Benzyl Acetate and Benzyl Ether 615
T.-T. Wang, C.-H. Chang, and T.-C. Huang

Kinetics and Mechanism of the Reaction of Cl Atoms with CH_2CO (Ketene) 627
T. J. Wallington, J. C. Ball, A. M. Straccia, M. D. Hurley, E. W. Kaiser, M. Dill, W. F. Schneider, and M. Bilde

Diskette Submission Instructions I

No. 9, September 1996

Kinetics and Mechanism of Hydrogen Peroxide Oxidation of Chromone-3-Carboxaldehydes in Aqueous Acid and Micellar Media 637
M. Matha, L. B. T. Sundari, K. C. Rajanna, and P. K. Saiprakash

Kinetics of Esterification of Acetic Acid with Propyl Alcohol by Heterogeneous Catalysis 649
H. J. Bart, W. Kaltenbrunner, and H. Landschützer

Ruthenium(III)-Schiff Base Complex Catalyzed Oxidation of Secondary Alcohols by *N*-Methylmorpholine-*N*-Oxide or Thallium(III) Acetate 657
K. J. Tony, V. Mahadevan, J. Rajaram, and C. S. Swamy

Oxygen Initiated Combustion: Thermochemistry and Kinetics of Unsaturated Hydrocarbons 665
S. W. Benson

Kinetics of Vanadium(V) Catalyzed Oxidation of Gallic Acid by Potassium Bromate in Acid Medium 673
D. L. Kamble and S. T. Nandibewoor

Kinetics and Mechanism of the Oxidation of Some Thioacids by Benzyltrimethylammonium Dichloroiodate 681
D. Suri, S. Kothari, and K. K. Banerji

Kinetics and Mechanism for Oxime Formation from 2-Quinolinecarboxaldehyde 687
M. Calzadilla, A. Malpica, and P. M. Diaz

Theoretical Study of Reactions of N_2O with NO and OH Radicals 693
A. M. Mebel, M. C. Lin, K. Morokuma, and C. F. Melius

Kinetic and Mechanistic Studies on the Complexation and Anation of Dioxotetracyanomolybdate(IV) with 2,2′-Bipyridyl in Aqueous Solution 705
S. I. Ali, Z. Murtaza, and Z. Khan

Diskette Submission Instructions 712

No. 10, October 1996

Kinetics of Oxidation of Certain Pyrimidines by Ce(IV) 713
S. Lakshmi and R. Renganathan

Gas-Phase Ozonolysis of Ethene in the Presence of Hydroxylic Compounds 721
P. Neeb, O. Horie, and G. K. Moortgat

Temperature-Dependent Kinetics Studies of the Reactions of $C_2H_5O_2$ and n-$C_3H_7O_2$ Radicals with NO 731
J. Eberhard and C. J. Howard

Pyrolysis of Aminonitriles, Cyanohydrazones, and Cyanoacetamides. Part I. Elimination Reaction of 1-Arylmethyleneamino-1,2-Dihydro-4,6-Dimethyl-2-Oxopyridine-3-Carbonitriles and Substituted Benzaldehyde Cyanoacetylhydrazones 741
N. A. Al-Awadi, M. H. Elnagdi, T. Mathew, I. El-Gamry, and M. A. Khalik

Pyrolysis of Aminonitriles, Cyanohydrazones, and Cyanoacetamides. Part II. Elimination Reactions of Arylacetylhydrazone, Arylcyanoactylhydrazone, and Substituted Cyanoacetamides 749
N. A. Al-Awadi, M. H. Elnagdi, T. Mathew, and M. A. Khalik

Pyrolysis of Hexachloroethane in the Gas Phase: Computer Aided Kinetic Study 755
G. Huybrechts, J. Theys, and B. Van Mele

Kinetics and Mechanism of the Cl + CO Reaction in Air 763
A. D. Hewitt, K. M. Brahan, G. D. Boone, and S. A. Hewitt

Impact of SO_2 and NO on CO Oxidation under Post-Flame Conditions 773
P. Glarborg, D. Kubel, K. Dam-Johansen, H.-M. Chiang, and J. W. Bozzelli

Diskette Submission Instructions I

No. 11, November 1996

Pressure and pH Dependence of the Kinetics of Decarboxylative Dechlorination of *N*-Chloro-l-Alanine 791
M. C. Brown, J. M. LePree and K. A. Connors

Kinetics and Mechanism of the Oxidation of L-α-Amino-n-Butyric Acid by Permanganate in Acid Medium 799
A. Arrizabalaga, F. J. Andrés-Ordax, M. Y. Fernández-Aránguiz, and R. Peche

Rate Constants for the Gas-Phase Reaction of OH with Amines: *tert*-Butyl Amine, 2,2,2-Trifluoroethyl Amine, and 1,4-Diazabicyclo[2.2.2]Octane 807
R. Koch, H-U. Krüger, M. Elend, W-U. Palm, and C. Zetzsch

Pulsed Laser Powered Homogeneous Pyrolysis for Reaction Kinetics Studies: Probe Laser Measurement of Reaction Time and Temperature 817
M. T. Swihart and R. W. Carr

Kinetics and Modeling of the Thermal Reaction of Propene at 800 K. Part I. Pure Propene 829
P. Barbé, R. Martin, D. Perrin, and G. Scacchi

Kinetics and Modeling of the Thermal Reaction of Propene at 800 K. Part II. Propene in the Presence of Hydrogen 849
P. Barbé, R. Martin, D. Perrin, and G. Scacchi

Diskette Submission Instructions I

No. 12, December 1996

Vilsmeier-Haack Formylation of Coumarin Derivatives. A Solvent Dependent Kinetic Study 865
K. C. Rajanna, F. Solomon, M. Moazzam Ali, and P. K. Sai Prakash

Oxidation of Some Primary Amines by Bromamine-B in Alkaline Medium: A Kinetic and Mechanistic Study 873
S. Ananda, T. Demappa, D. S. Mahadevappa, and N. M. Made Gowda

Mass-Spectrometric Determination of Product Branching Probabilities for the $NH_2 + NO_2$ Reaction at Temperatures between 300 and 990 K 879
J. Park and M. C. Lin

Homogeneous Reaction of Carbon Disulfide and *o*-Phenylene Diamine Catalyzed by Tertiary Amines 885
M.-L. Wang and B.-L. Liu

Template Mechanism and Kinetics for the Complexation of Ninhydrin with Copper(II) Complexes of Asparagine and Serine 893
Z. Khan, A. A. Hashmi, T. A. Khan, and M. M. Haq

Kinetics of Oxidation of SCN^- by Diperiodato Cuprate(III) (DPC) in Alkaline Medium 899
N. L. Weijun, Z. Yan, H. Kecheng, T. Changlun, and Y. Hangsheng

Kinetics of the Gas-Phase Reactions of NO_3 Radicals and O_3 with 3-Methylfuran and the OH Radical Yield from the O_3 Reaction 905
A. Alvarado, R. Atkinson, and J. Arey

Rate Constants for the Gas-Phase Reaction of Ozone with 1,1-Disubstituted Alkenes 911
E. Grosjean and D. Grosjean

The Dependence of Quinine Fluorescence Quenching on Ionic Strength 919
B. Verity and S. W. Bigger

Product Formation from the Reaction of the NO_3 Radical with Isoprene and Rate Constants for the Reactions of Methacrolein and Methyl Vinyl Ketone with the NO_3 Radical 925
E. S. C. Kwok, S. M. Aschmann, J. Arey, and R. Atkinson

Characteristics of the Hydrate Layer Formed at the Liquid CO_2–Water Interface 935
H. Teng

Author Index to Volume 28 941

Subject Index to Volume 28 947

Index of Compounds to Volume 28 949

Volume Contents I

Diskette Submission Instructions IX